Remarks:

Reconsideration of the application is requested. Claims 1-15 are now in the application. Claims 1 and 6 have been amended. Claims 11-15 have been added.

In item 3 of the above-identified Office action, the Examiner has rejected claims 1-10 as failing to comply with the written description requirement under 35 U.S.C. § 112, first paragraph. More specifically, the Examiner rejected the independent claims (Claims 1 and 6) for reciting features not described in the specification: namely, a support plate being sintered and formed as a printed circuit board. However, this feature is described in the specification at page 8, line 21; page 9, lines 9-11; page 13, lines 4-5; and Ref. No. 11 in Fig. 4. Accordingly, the claims comply with requirements of Section 112, first paragraph.

In item 5 of the Office action, the Examiner rejected claims 1-10 as being indefinite under 35 U.S.C. § 112, second paragraph. More specifically, the Examiner rejected claims 1 and 6 for being unclear for stating, "A second of said side surfaces bearing said signal electrode to the signal pins." The phrase "To the signal pins" has been deleted from claims 1 and 6. Figs. 1-2 and the specification have been amended to label the first and second sides with Ref. Nos. 1A and 1B, respectively. The remainder of the phrase, "A second (1B) of

said side surfaces (1A, 1B) bearing said signal electrode (3)," [Ref. No. Added] is thereby made definite.

Accordingly, the specification and the claims meet the requirements of 35 U.S.C. § 112, first and second paragraphs. Should the Examiner find any further objectionable items, counsel would appreciate a telephone call during which the matter may be resolved. The changes are neither provided for overcoming the prior art nor do they narrow the scope of the claim for any reason related to the statutory requirements for a patent.

In item 6 of the Office action, the Examiner rejected claims 1-2 and 4-10 as being fully anticipated by Plass (U.S. Patent 5,242,318) under 35 U.S.C. § 102(b). As will be explained below, the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, a brief review of the invention as claimed is provided. Claim 1 calls for, *inter alia*, a filter configuration that includes the following features:

> a monolithic planar filter having a plurality of capacitors, said capacitors having:

a plurality of signal electrodes for connecting to the signal pins,

one common shared ground electrode, and

one common shared dielectric layer formed of a ceramic material disposed between said ground electrode and said plurality of signal electrodes, having two side surfaces and an edge, and being block shaped, perforated with pin lead-throughs for receiving the signal pins, and subsequently sintered,

a first of said side surfaces bearing said ground electrode, said side surface bearing said ground electrode being lapped to planarity to prevent overloads caused by spot-loads, and

a second of said side surfaces bearing said signal electrodes; and

a supporting plate being sintered and formed as a printed-circuit-board dielectric plate with a dielectric constant lower than said dielectric layer and having supporting-plate pin lead-throughs corresponding to the pin lead-throughs;

said supporting-plate pin lead-throughs having a diameter sufficiently wider than the signal pins to draw solder via capillary action into said pin lead-throughs;

said planar filter and said supporting plate being separately finished. (Emphasis Added by Applicants)

Therefore, the object of the invention is to improve the prior art by describing a planar filter configuration for the use in plug connectors, the production of which is simple and feasible and that can also be produced with increased voltage-sustaining capability.

Plass (U.S. 5,242,318) and the instant application are both commonly-assigned to Filtertec Filtertechnolgie für die Elektronikindustrie GmbH. Because both applications are co-owned. The details of the prior-art are intimately known.

Plass teaches an in-line connector. In an in-line connector, shear does not occur to surfaces (i.e. In Plass, the planar filter (10) and the filter carrier (9) placed orthogonally to the pin (12.1)).

In contrast, the invention teaches a connector for bent signal conductors; *compare* Ref. Nos. 12, 13 in Fig. 4. When bent conductors are pressed at both ends, a shear is created between two contacting surfaces placed orthogonally along the signal conductor. So, if the two surfaces are connected to each other either by an interlocking connection or an adhesive or solder, then a shear between the two will be created when the connector is being plugged-in.

To overcome the shear problem, the invention teaches to solder the planar filter and the filter carrier to the pin (and not to each other). By being only connected to the pin and merely abutting each other, no shear is created between the planar filter and the filter carrier when the connector is connected. These features are explicit in claims 11-12. Support for

these claims can be found in the specification page 13, line 17, through page 14, line 10.

Plass teaches a planar filter (10) having a face connected to the face of a planar filter (10). The planar filter (10) and carrier (9) form a unit. As illustrated in Fig. 6a, the planar filter (10) is connected with the carrier (9) in a single piece. Plass does not teach a separate support plate that is connected merely by surface-to-surface contact and not interlocking, adhesive, or solder.

In addition, Plass does not teach sizing the ducts 12 relative to the signal lines 12.1 to create capillary action that draws solder throughout the connection. Rather, Plass merely teaches a simple solder connection--no capillary action; *see* Plass, col. 10, line 43.

In contrast to Plass, claims 1 and 6 both describe, "Said supporting-plate pin lead-throughs having a diameter sufficiently wider than the signal pins to draw solder via capillary action into said pin lead-throughs." This feature is not taught by Plass. Therefore, Plass does not teach or suggest claim 1 or claim 6.

Another difference between Plass and the invention of the instant application is the material and necessarily the

thickness of the dielectric. The problems of the prior-art thicknesses are discussed in the specification between page 3, line 24, and page 4, line 15.

Generally, the problems in the prior-art capacitors is that they cannot combine high capacitance with sufficient voltage-sustaining capability are not possible. The prior teaches capacitors formed by placing a signal electrode and a ground electrode on opposing sides of sintered (commonly, Al_2O_3) carrier. The resulting prior-art capacitors achieve sufficient capacitance by using materials with thin dielectrics and a high dielectric constant. However, the voltage-sustaining capability also decrease with the decreasing layer thickness of the dielectric. As a result, the prior-art planar filters cannot withstand higher surges of energy. Plass (U.S. 5,242,318) is an example of such a prior-art planar filter.

In addition, the high dielectric constant materials taught by the prior art are mechanically too soft to be used in sintered planar filters according to the invention. As stated previously, the prior art teaches to apply the ground electrode and the signal electrode on opposing sides of the carrier, which has a high dielectric constant. The resulting planar filter has capacitors that have a relatively low capacity even when the carrier has a relatively high

dielectric constant; this is compensated by reducing the layer thickness. The capacitors of such planar filters have a clearly increase voltage-sustaining capability due to the dielectric layers applied via a silk-screen process, but they have smaller capacitive values. In order to achieve a sufficient compensation, carriers with higher dielectric constants are used. Such carriers are typically made of Al_2O_3 and are therefore too soft.

In particular, in Plass, metallized contact tongues 9.1 are included on the filter carrier as signal electrodes. The ceramic dielectric is applied on the filter carrier. The thickness of the film process is merely 20 to 40 μm, which limits the electric voltage sustaining capability. Accordingly, one with ordinary skill in the art viewing Plass would not be suggested to make a voltage-proof planar filter like the one described in the instant application.

Claims 13 and 14 are further distinguished from Plass by the timing of the metallization (i.e. the relative sequence of steps for applying the ground electrode). Support for claims 13 and 14 is found in the specification at page 7, lines 14-20. In Plass, the metallization of the ground electrode is applied on the dielectric that covers the signal electrodes. Then, the thus produced raw filter is sintered subsequently.

The different materials (metallization and dielectric) with different thermal expansion coefficients lead to inner thermal voltages that, in turn, reduce the voltage-sustaining capability and cause mechanical discards. This phenomena cannot be avoided in Plass, even with very high-quality metal alloys for the metallizations (which decreases the production feasibility). In contrast, the invention of the instant application as described in claims 13-14 calls for the planar filter to be produced by pressing or injection molding (as a uniform body), then sintering, and subsequently metallizing. Mechanical stresses cannot occur during the sintering because the metallization has yet to occur. Only after processing (i.e. sintering) the uniform base body of the filter is the filter metallized to form the signal electrodes and the ground electrode.

To review the differences between the invention of the instant application as claimed and Plass, claim 1 calls for a filter configuration comprising a planar filter and a supporting plate that are separately finished but are intended to be joined (i.e. abutted, not fixed) during subsequent assembled; see claims 1 and 15. Claim 6 describes a multi-pole angle-connecting devices (i.e. the plug connector) comprising signal pins, the filter configuration of claim 1 (i.e. planar filter and supporting plate), and solder.

The planar filter is produced by pressing, injection molding (as a uniform body) and sintered subsequently. Mechanical stresses caused by different materials are impossible. Subsequently, the uniform body is metallized to form the signal electrodes and the ground electrode. Only after metallizing, is post-processing performed.

The support is produced and post-processed by pressing, injection molding. The post-processing is performed on the uniform material. After post-processing, the lead-throughs are metallized.

The Planar filter and support plate are only brought together and placed immediately on top of each other during installation of the planar filter into the plug connector. The mechanical connection takes place by soldering the components separately to the signal pins. The molten solder is pulled capillary through the lead-through openings and connects the metallization of the lead-through openings of the support plate and of the signal electrode to metallic signal conductor.

The filter configuration, which is usable in plug connectors, can be produced in a simple and feasible manner. If a thermal treatment is necessary, only uniform bodies are present. The electrical ratios at the capacitors are easy to control

because the thick-layer technology is no longer a prerequisite for their production. In particular, the voltage-sustaining capability can thus be brought to the desired values.

Compared to Plass, the invention of the instant application improves the prior art by using a planar filter and support plate that are separate components and that are brought into contact with each other only when joining the plug connector. The mechanical connection is generated by soldering, whereby the liquid solder is brought through the signal conductor lead-through in a capillary manner and the connection of the planar filter with the support plate is generated, whereby the strength after the solidification of the solder is given. In order to prevent mechanical overloads when the support plate is attached at the planar filter, the adjacent surfaces are lapped until they are flat.

Therefore, Plass does not show the invention as recited in claims 1, 6, and 11-14 of the instant application. Accordingly, none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1, 6, and 11-14. Therefore, claims 1, 6, and 11-14 are patentable over the art. Moreover, because all of the dependent claims are ultimately dependent on claim 1 or 6, they are believed to be patentable as well.

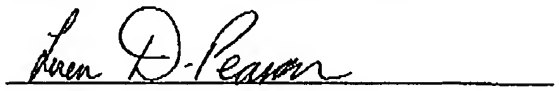
In item 9 of the above-identified Office action, the Examiner rejected claim 3 as being obvious over Plass under 35 U.S.C. § 103(a). Claim 3 depends on claim 1. Claim 3 is therefore patentable over the prior art for the same reasons as claim 1.

In view of the foregoing, reconsideration and allowance of claims 1-15 are solicited. In the event the Examiner should still find any of the claims to be unpatentable, please telephone counsel so that patentable language can be substituted.

Petition for extension is herewith made. The extension fee for response within a period of one month pursuant to Section 1.136(a) in the amount of $55 in accordance with Section 1.17 is enclosed herewith.

Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,



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